

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q79277

Kazuyuki KUWADA, et al.

Appln. No.: 10/752,700

Group Art Unit: 2891

Confirmation No.: 5921

Examiner: Dana Farshad

Filed: January 8, 2004

For: SEMICONDUCTOR DEVICE AND PROCESS FOR PRODUCING SEMICONDUCTOR  
DEVICE

DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Hideyuki Usui, hereby declare and state:

THAT I am a citizen of Japan.

THAT, in March 1986, I Graduated from Yokohama National University, Graduate  
School, Faculty of Engineering, with a Master's degree.

THAT, in April, 1986, I was employed by Nitto Denko Corporation.

THAT, from April, 1986 until now, I have been engaged in researches and developments  
in the fields of materials for encapsulation of semiconductors, photosensitive polyimides, epoxy  
resins for optical use such as LED, microlens film, etc.

I am familiar with the subject matter of the present application.

I am one of the co-inventors named in U.S. Patent No. 5,990,546 to Igarashi et al, and I  
am familiar with the disclosure thereof of Igarashi et al.

The present invention is directed to a semiconductor device wherein the semiconductor element has been encapsulated by coating the back and the edges of the semiconductor element with a thermosetting sheet material having tackiness.

Igarashi et al teaches that the semiconductor chip is sealed by a bonding sheet 33 using an epoxy-rubber resin as a bonding agent. Specifically Igarashi et al states:

In Fig. 5(B), the space between the semiconductor chip 1 and the auxiliary wiring plate 2 is sealed by epoxy resin 31, and the transverse edge and back face of the semiconductor chip 1 are sealed by bonding of a bonding seat [sic] 33 (e.g., using epoxy-rubber resin as bonding agent).

There is a difference between the "bonding agent" of Igarashi et al and the "bonding sheet" of the present invention.

Igarashi et al teaches that the semiconductor chip is sealed by a bonding sheet 33 using an epoxy-rubber resin as a bonding agent. This does not mean that the bonding sheet itself is an epoxy rubber resin.

The bonding sheet 33 referred to in Igarashi et al uses an epoxy-rubber resin as a bonding agent. In view of the use of the bonding agent, it is clear that the bonding sheet itself does not contain a rubber and therefore does not necessarily have tackiness. Rather, the use of the epoxy-rubber resin as a bonding agent indicates that the bonding sheet itself does not have tackiness.

Moreover, Igarashi et al does not disclose or teach a bonding sheet, which is thermosetting. The term "thermosetting" is used only at column 5, lines 27-28, of Igarashi et al

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in referring to "a thermoplastic or thermosetting bonding agent". There is no disclosure, teaching or suggestion of a thermosetting bonding sheet in Igarashi et al.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Dec. 26, 2006

  
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Hideyuki Usui